

REMARKS

Applicant has carefully studied the outstanding Office Action. The present amendment is intended to place the application in condition for allowance and is believed to overcome all of the objections and rejections made by the Examiner. Favorable reconsideration and allowance of the application are respectfully requested.

Applicant has amended claims 1, 18, 25, 40, 41, 43, 45, 51, 68, 75, 90, 91, 93 and 95 to more properly claim the present invention. No new matter has been added. Claims 1 – 100 are presented for examination.

On page 1 of the Office Action, the Examiner has objected to the disclosure because information pertaining to cross-related applications was omitted. Applicant has accordingly amended the disclosure.

On pages 2 and 3 of the Office Action, the Examiner has rejected claims 18, 45, 68, 95, and their dependent claims, under 35 U.S.C. §112, first paragraph, for failure to adequately describe how a logical term is a single relation from the ontology with instances specified for all but one parameter, and how an instance of an instance document is the element in the missing class from the domain of the relation.

Regarding claims 18 and 68, page 46, fourth paragraph of the subject specification describes how a logical term is a single relation from an ontology with instances specified for all but one parameter. For example, a collection of people all of whom work in a specific company department can be defined from a relation “WorksIn” on Departments \times People by specifying the department parameter and not specifying the people parameter. That is, WorksIn(finance, *) defines the collection of people who work in the finance department. More precisely, this collection is the set

$$\{p \in \text{People} : (\text{finance}, p) \in \text{WorksIn}\}.$$

Similarly, as further described on page 46, fourth paragraph, Contains(stock room #4, *) defines the collection of components located in stock room #4. Here too, the one instance parameter for components in the relation Contains is not specified.

Regarding claims 45 and 95, the instance for the missing class People in the relation WorksIn(finance, *), for example, can be searched for, to generate a collection, as described on page 47, second paragraph of the subject specification. Specifically, as recited on page 47, lines 22 - 38, *“The collection is defined to include instances that can fit in that missing class and satisfy the relation ... The web is searched for relation instance documents for the relation, and these are further searched for tuples where the first element is the instance*

finance. For each such instance an icon is created using the above mentioned technique, and inserted within the collection using standard library calls to add an icon to a window.”

Applicant has amended claims 18, 45, 68 and 95 to clarify the intent of the language.

On pages 3 – 5 of the office action, the Examiner has rejected claims 1 – 7, 10, 16, 23, 25 – 31, 34, 40 – 43, 51 – 57, 60, 66, 73, 75 – 81, 84 and 90 - 93 under 35 U.S.C. §102(b) as being anticipated by Chang et al., U.S. Patent No. 5,627,979 (“Chang”).

On pages 5 – 9 of the Office Action, the Examiner has rejected claims 11 – 14, 17 – 22, 35 – 38, 45, 50, 61 – 64, 67 – 72, 85 – 88, 95 and 100 under 35 U.S.C. §103(a) as being unpatentable over Chang and Yeager et al., U.S. Patent No. 5,950,190 (“Yeager”).

On pages 9 – 11 of the Office Action, the Examiner has rejected claims 8, 9, 24, 32, 33, 44, 58, 59, 82, 83 and 94 under 35 U.S.C. §103(a) as being unpatentable over Chang and Tuli, U.S. Patent No. 6,003,034 (“Tuli”).

On pages 12 and 13 of the Office Action, the Examiner has rejected claims 15, 39, 65 and 89 under 35 U.S.C. §103(a) as being unpatentable over Chang and Wical, U.S. Patent No. 6,112,201 (“Wical”).

On pages 13 and 14 of the Office Action, the Examiner has rejected claims 46 – 49 and 96 – 99 under 35 U.S.C. §103(a) as being unpatentable over Chang and Yeager and further in view of Tuli.

Distinctions between Claimed Invention and U.S. Patent No. 5,627,979 to Chang et al. in view of US Patent No. 5,950,190 to Yeager et al., and further in view of U.S. Patent No. 6,003,034 to Tuli and US Patent No. 6,112,201 to Wical

Chang describes a Smart Schema (Chang / element 110 for FIG. 1) for representing and graphically displaying a mapping between an object schema and a data store schema. The Smart Schema of Chang includes

- (i) an object schema generator, for specifying an object schema, as illustrated in FIGS. 7 and 8 and described at col. 8, line 38 – col. 9, line 50;
- (ii) a relational schema generator, for specifying a data store schema, such as a relational database schema, as illustrated in FIGS. 7 and 9 and described at col. 9, line 51 – col. 10, line 36; and
- (iii) a schema mapper for specifying a mapping between an object schema and a data store schema, as illustrated in FIGS. 10 – 27 and described at col. 10, line 37 – col. 17, like 54.

The schema mapper enables a user to associate classes of an object schema with tables of a relational database schema, and to further associate table columns with class attributes.

The subject invention involves a graphical user interface for browsing instances of classes. As described on page three, sixth paragraph of the subject specification, “instances” of a class are specific instances of the species within the genus. For example, “Gone with the Wind” is an instance of a class for books, and “IBM” is an instance of a class for companies. Chang describes instances in a similar way at col. 1, line 54 – col. 2, line 16 and col. 2, line 66 – col. 3, line 3, with reference to object classes and instances.

In distinction from the present invention, Chang does not describe graphical representations of object instances. FIG. 8 of Chang, for example, shows graphical representations for object classes Animal, Dog and Cat, but does not show graphical representations for instances thereof, which would correspond to specific animals (e.g., “Lassie”, “Sylvester”, “Felix”).

In contrast, FIGS. 22A – 22E of the subject specification show graphical representations of class instances. As described on page 42 of the subject specification, when a user right clicks on window 2213 of FIG. 2A, for a collection of carriers, window 2230 of FIG. 22B pops up, and displays icons for instances of carriers, including USPS 2231, UPS 2232, FedEx 2233 and DHL 2234. Moreover, properties (i.e., attributes) of a specific instance, such as UPS, are accessible from list 2250 of FIG. 2D, including name 2251, location 2252, employees 2253, credit rating 2254, volume 2255 and rates 2256.

A preferred implementation of the behavioral display of icons in FIGS. 22A – 22E is described in the subject specification inter alia on page 45.

Yeager describes a graphical user interface for querying complex and dynamically changing relational database systems and object-oriented database systems.

Tuli describes a file management system that associates multiple attributes to files, and enables retrieval of a file through one or more of its attributes. FIGS. 3 – 5 illustrate set theoretical logic for querying a database of files using graphical icons that represent attributes.

Wical describes a document management system modeled after a physical bookstore in which a customer browses through aisles of books organized by general categories and sub-categories.

On page 3 of the Office Action, the Examiner has cited col. 13, lines 40 – 42 of Chang, indicating that Chang teaches a graphical user interface including icons for representing instances of classes. Applicant respectfully submits that at the location cited,

Chang refers to a Person class icon 1070 (FIG. 14), which represents the Person class and not instances thereof. In distinction, icons 2221 – 2226 of FIG. 2A of the subject invention represent specific people (Ellen, Mike, Tom, Lisa, Bob and Tina).

In order to clarify the distinction of the subject invention over the cited references and better describe the subject instance browser, applicant has amended independent claims 1, 25, 51 and 75 so as to include the feature of interactively displaying icons for instances of classes as a user browses an ontology. The amended claims more accurately reflect the instance browser illustrated in FIGS. 22A – 22E.

The rejections of claims 1 - 100 in pages 3 - 14 of the Office Action will now be dealt with specifically.

As to amended independent claim 1, applicant respectfully submits that the limitation in claim 1 of:

“a graphical user interface communicating with said server interactively displaying icons representing instances of classes as a user browses said repository”

is neither shown nor suggested in Chang, Yeager, Tuli or Wical.

Because claims 2 - 24 depend from claim 1 and include additional features, applicant respectfully submits that claims 2 - 24 are not anticipated or rendered obvious by Chang, Yeager, Tuli and Wical, taken alone or in combination.

Accordingly claims 1 - 24 are deemed to be allowable.

As to amended independent claim 25, applicant respectfully submits that the limitation in claim 25 of:

“interactively displaying icons representing instances of classes as a user browses the repository, based on said responding”

is neither shown nor suggested in Chang, Yeager, Tuli or Wical.

Because claims 26 - 50 depend from claim 25 and include additional features, applicant respectfully submits that claims 26 - 50 are not anticipated or rendered obvious by Chang, Yeager, Tuli and Wical, taken alone or in combination.

Accordingly claims 25 - 50 are deemed to be allowable.

As to amended independent claim 51, applicant respectfully submits that the limitation in claim 51 of:

“a graphical user interface communicating with said computer network interactively displaying icons representing instances of classes as a user browses said plurality of repositories”

is neither shown nor suggested in Chang, Yeager, Tuli or Wical.

Because claims 52 - 74 depend from claim 51 and include additional features, applicant respectfully submits that claims 52 - 74 are not anticipated or rendered obvious by Chang, Yeager, Tuli and Wical, taken alone or in combination.

Accordingly claims 51 - 74 are deemed to be allowable.

As to amended independent claim 75, applicant respectfully submits that the limitation in claim 75 of:

“interactively displaying icons representing instances of classes as a user browses the repository, based on said responding”

is neither shown nor suggested in Chang, Yeager, Tuli or Wical.

Because claims 76 - 100 depend from claim 75 and include additional features, applicant respectfully submits that claims 76 - 100 are not anticipated or rendered obvious by Chang, Yeager, Tuli and Wical, taken alone or in combination.

Accordingly claims 75 - 100 are deemed to be allowable.

Support for Amended Claims in Original Specification

Independent claims 1, 25, 51 and 75 have been amended to include the feature of interactively displaying icons representing instances of classes as a user browses a repository. This feature is supported in the original specification inter alia in the discussion of FIGS. 22A – 22E on pages 42 and 43.

Dependent claims 40, 41, 43 and 45 have been amended to be consistent with amended independent claim 25, and dependent claims 90, 91, 93 and 95 have been amended to be consistent with amended independent claim 75.

Dependent claims 18, 45, 68 and 95 have been amended to clarify the language regarding collections of instances defined by a relation with all but one instance specified therein. This feature is supported in the original specification inter alia on pages 46 and 47.


For the foregoing reasons, applicant respectfully submits that the applicable objections and rejections have been overcome and that the claims are in condition for allowance.

Please charge any shortages or credit any overages to Deposit Account No. 02-2666.

Respectfully submitted,

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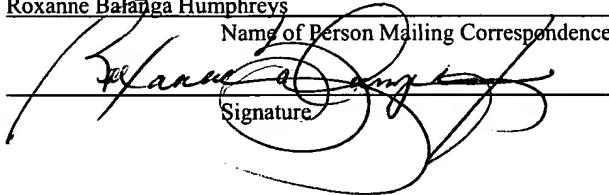
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